

**French manufacturer
since 1864,
specialists in roll bending**



■ The Company ■ Your Requirements ■ Picot Technology
■ Anatomy of a roll bending machine ■ HUMAN/MACHINE Interface



PICOT SINCE 1864

Founded in Lyon in 1864,
Picot provides its customers
with the means of roll
bending suited to their
requirements.

More than 5,000 roll bending
machines worldwide.
Recognised technical skills
in machine tools.
Advice based on long
experience in roll bending.

An international network of
agents to provide support.





Meeting your needs

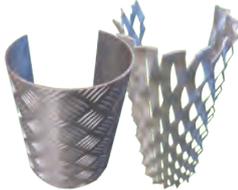
> Our fields of expertise:



AERONAUTICS / ENERGY / PUBLIC WORKS / ARCHITECTURE AND DESIGN / TRANSPORT / INDUSTRY
A technical partner by your side

Can you do this?

> Shaped parts
3D, pressed...



> Very thick parts
Power and control



> Composite materials
ALCOA - Reynobond®



> Aesthetic parts
Decoration



> 4 m bending - 8 mm thick

AERONAUTICS

Customers: AIRBUS, AIRCEL, SAFRAN, RUAG...
Requirements: repeatability, precision, reliability.



> Bending up to 6 m

TRANSPORT

Customers: MAISONNEUVE, MAGYARD, SPITZER, CWA...
Requirements: productivity, appearance, ease of use.



> 4 m bending - Composite

ARCHITECTURE

Customers: ALCOA (PARTENAIRE), ACODI, LAUDE, COANUS...
Requirements: respect for the material, versatility of the machine, straightness/tolerance...



> 3 m bending - 10 mm thick

INDUSTRY/PUBLIC WORKS

CUSTOMERS: BABCOCK, MAGHREB STEEL, AIR LIQUIDE, ALSTOM / JCB, ACB, EMILY-MAGSI, MANITOU...
Requirements: prebending, performance, reliability

Precision & versatility



Technological timeline of the roll bending machine market

> Beginning of the 20th Century

3 rolls in a pyramid:
long flat edges
(mechanical machines)..

> 1970-80

Switchover to hydraulic machines:
machines with 3 symmetrical rolls, double
prebending and 4 rolls for thick sheets.

**Picot built the first 100%
hydraulic machine
(1973 - Vallet).**

**First patent for the control and
synchronisation of rolls (1973).**

> 1990

Democratisation of the "lowcost"
machine on 4-roll base: simplified
lateral movement, only 1 or 2 motors,
bearings, torsion bar.

> 2000

Development of numerical controls
and interfaces.

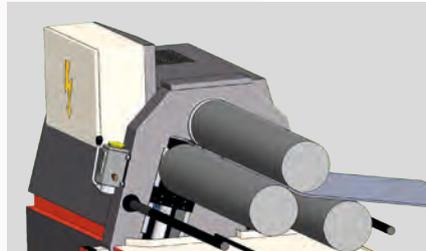
**Picot sold the first CNC machine
on the market (1992 - Moutot).**



Picot Technology

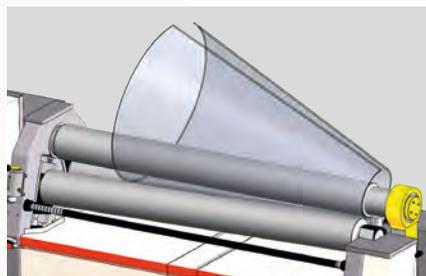
> 3 Rolls or 3+1... multiple possibilities

Stand out with PICOT technology



01 PREBENDING

High-performance prebending. The best are made
using 3 rolls: shorter flat edges and greater power
with Picot thanks to its construction and optimum
spacing between the rolls.



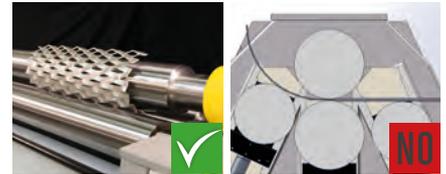
02 CONES

Easy cone bending with maximum torque using 3 rolls
For simplicity of production (loss of torque if using
4 rolls due to the retraction of the pincher).
On PICOT 3 or 4-roll machines, each roll is powered
independently.



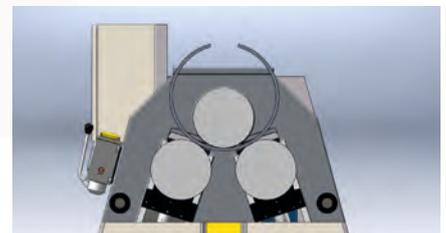
03 PROFILES

Wide clearance between the rolls allowing some
profiles to be rolled.



04 NON-LAMINATED 3D

For rolling any types of materials or products with
no lamination including 3 dimensional shapes.
A technology that also offers the possibility
of calibration after welding for precision
of the millimetre without damaging the welds.



05 SYMMETRICAL ROLLING

Trouble-free rolling of complex shapes, with
no risk of deformation of the profile chosen.
The symmetrical position of the rolls during roll
bending ensures complete control over the end
result (spacing of the points of contact marking
the diameter of the circle being made: precision
and minimum variation).

All our roll bending machines have been
developed and refined in Lentilly - France





Anatomy of a PICOT roll bending machine

> Conscious technological choices, guided by our technical expertise for the satisfaction of our customers

06

POWER



One motor (geared motor) per standard roll. We have fitted our machines with DanPass motor for more than 35 years. The rolls' rotation is synchronised at the factory by a hydraulic device which prevents any variation over time.
Benefits: maximum torque, optimised efficiency, speed synchronisation, reliability.

07

LINEAR GUIDE



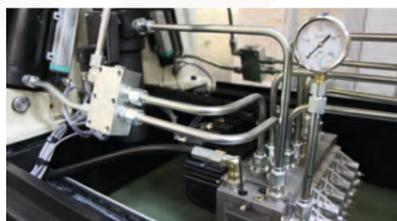
The most effective technology to eliminate friction and enhance performance in all operating modes: cylinder and cone bending.

Also the strategic choice for optimised prebending (on 3 & 4-roll machines).

Benefits: maximum hydraulic power efficiency, no wear.

08

PROPORTIONAL DISTRIBUTION



All our roll bending machines have roll position and rotation control with proportional adjustment.

From the standard, manually controlled machine to the machine fitted with a control panel with DanPass proportional distribution, the quality of the rolling is controlled by increasingly progressive and very precise movements.

The valves mounted on our machines are specific to Picot and were developed with DanPass.

Benefits: progressiveness of movements, quality of sensitive zones, operator ergonomics.

09

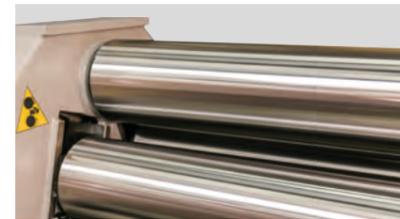
PARALLELISM SYNCHRONISATION

Since our first patent in the 70s, our choice has always been

- > either hydraulic control (hydraulic valves on standard machines)
- > or numerical control of each cylinder to ensure perfect parallelism throughout the machine's life. Cone bending is controlled by the same devices. ▶

11

ROLLS

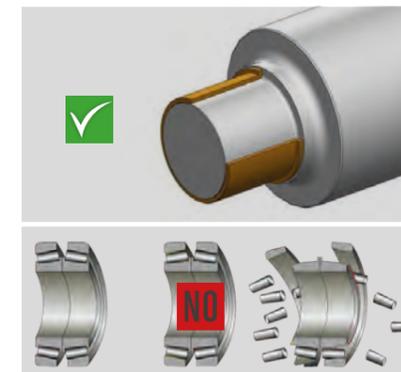


The rolls are made from high quality steel with selected and traceable characteristics.

- > Tailored bending.
- > Polished Finish to guarantee no marking, even in very sensitive materials.
- > Induction hardening: hardness 55-60 HRC.
Benefit: tailored production.

10

BEARING DEVICE



- ▶ Measurement and control in position are ensured by absolute linear scale systems: **no need for calibration on start-up and the assurance of preserving the part even after an emergency stop or power cut.**

The coupled lever (available from Picot for 40 years) simplifies the movements and **controls the synchronisation of the pinch rolls one-handed.**

Benefits: efficiency of the manufacturing process, precision of movement, operator ergonomics.

We fit all our machines with bronze bearings, which hold heavy loads during the rolling phases. **This technology is unmatched either in terms of its capacity or its longevity.** Lubrication is centralised and it requires no maintenance.

Production equipment and assistance



We have a variety of equipment to help with or protect your production environment.

Special tailored machines



We design and make all the components that go into Picot roll bending machines. We can develop special machines for you for specific requirements.

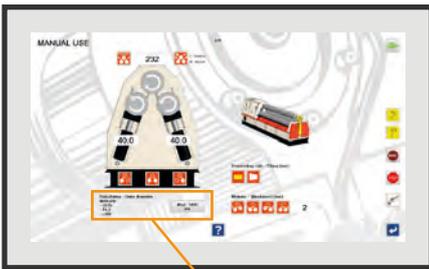


PICOT
ROULEUSES DE TÔLES
ROLL BENDING MACHINES



HUMAN/MACHINE INTERFACE

> Optimised and simplified control of machines



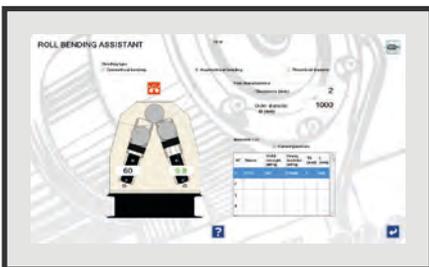
Calculation - Outer diameter
 Material :
 - S235
 - Th.2
 - L200

Øout 1092 mm

Manual rotation interface



List of materials interface



Asymmetrical rolling help interface

12 HUMAN/MACHINE INTERFACE

4 control options available for operating the roll bending machine:

- > Manual control (at the end of the machine).
- > Basic control panel (numerical indicator).
- > Numerical controls with learning mode (electronic circuit board).
- > Touch screen CNC

13 SCALABLE MACHINES

Upgrade the machine in line with its market. Since 2015, all our machines have been fitted with scalable controls which allow for changing interface (plug and play control panel) with no modifications or interventions on our part.



- Manual -



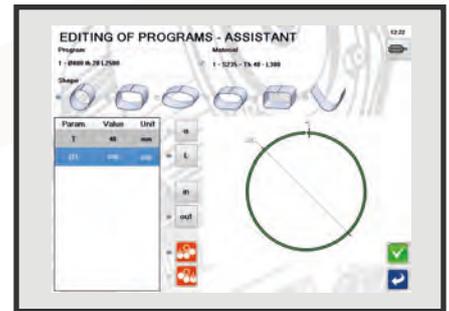
- Basic control panel -



- Electronic control panel -



- Touch screen -



14 ROLLING ASSISTANCE - SOFTWARE

The roll bending machines are controlled by components (electronic circuit boards) and software developed internally by our design office.

- Modes: manual, automatic.
- Calibration of the sheet for precisely calculating the rolling positions and managing the sheets library.
- Automatic generation of programmes for some shapes.
- Viewing the theoretical rolling diameter in real time (coupled with the sheets library).
- Machine capacity checking module
- Prebending assistance: calculation of the position of the rolls for a given diameter.
- Automatic calculation for cone bending.

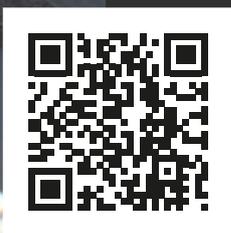
PICOT also offers a diameter measuring device to facilitate the work and minimise the number of gauges.





Visit our web site to see the complete technical data sheets, options available, view the machines in operation and learn about some of the many scopes of application...

www.ambpicot.com



AMB PICOT ZA de Charpenay, 69210 Lentilly
Tél. +33 (0)474 018 505 - Fax. +33 (0)4 74 01 76 56